FAG Motion Guard C6-MP-DISTRIBUTOR

Distributor
User manual

SCHAEFFLER

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Safety guidelines and symbols

High product safety

Our products correspond to the current level of research and technology. If the bearing arrangement is designed correctly, the products are handled and fitted correctly and as agreed and if they are maintained as instructed, they do not give rise to any direct hazards.

Follow instructions

This publication describes standard products.
Since these are used in numerous applications, we cannot make a judgement as to whether any malfunctions will cause harm to persons or property.

It is always and fundamentally the responsibility of the designer and user to ensure that all specifications are observed and that all necessary safety information is communicated to the end user. This applies in particular to applications in which product failure and malfunction may constitute a hazard to human beings.

Definition of guidelines and symbols

The warning and hazard symbols are defined along the lines of ANSI Z535.6–2006.

The meaning of the guidelines and symbols is as follows:

If these safety guidelines are not observed, death or serious injury may occur.

If these safety guidelines are not observed, minor or slight injury will occur.

If these safety guidelines are not observed, damage or malfunctions in the product or the adjacent construction will occur.

Note!

There follows additional or more detailed information that must be observed.

① Numbers within a circle are item numbers.

Original user manual

This user manual is the original user manual in accordance with the Machinery Directive 2006/42/EC.

FAG Motion Guard C6-MP-DISTRIBUTOR

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Features

The FAG Motion Guard C6-MP-DISTRIBUTOR provides lubricant to the lubrication points. The maximum pressure is 25 bar.
The lubricant is supplied from an FAG lubricator.
The service life and lubricant quantity are set on the lubricator.

The lubricant cartridge in the lubricator is designated as an LC unit. The unit comprising the lubricator and the distributor is the lubrication system.

The user manual must always be complete and in a legible condition. Users of the distributor must have this user manual available and must observe the information in the manual.

Scope of delivery

The items included in delivery are shown in *Figure 1*.

① Distributor
② Box of accessories
③ Connectors, straight type $G^1/_8$, 6 pieces
④ Connectors, elbow type $G^1/_8$, 6 pieces
⑤ Closing plugs $G^1/_8$, 4 pieces
⑥ User manual
⑦ Connection cable, short type, C6-KIT only
⑧ Drilling template, C6-KIT only
Holder, C6-KIT only
⑩ Lubricator, C6-KIT only

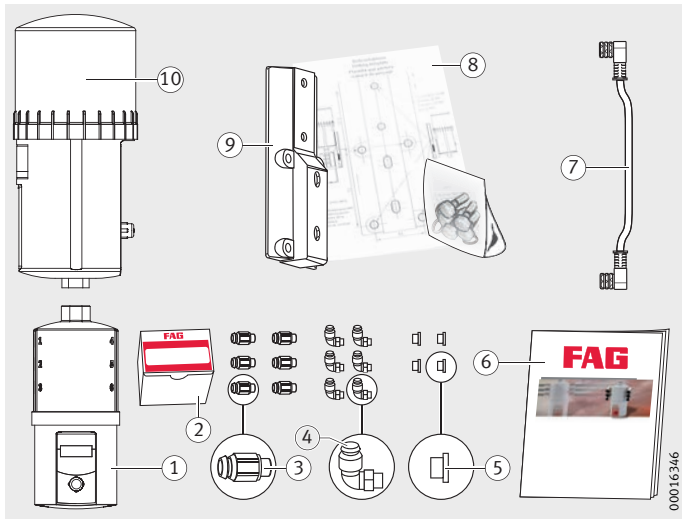


Figure 1
Scope of delivery

Note!

Check the delivery and report any damage in transit as a complaint to the deliverer. Any missing items or other defects must be reported as a complaint to Schaeffler Technologies AG & Co. KG.

Schaeffler Technologies AG & Co. KG accepts no liability for any defects that are the subject of retrospective complaints.

Ambient conditions

If the distributor is screwed together correctly with the lubricator, it is resistant to dust and spray water. However, the sealing rings and plastics may be attacked by ambient media. Uniform dispensing of lubricant and pressure build-up to a maximum of 25 bar can only be ensured at operating temperature.

Protect the distributor against chemically aggressive environments.

Operating temperature

The distributor can be used in the temperature range from –20 °C to +60 °C.

Storage

Store the distributor in a dry, dust-free environment in the temperature range from +15 °C to +25 °C.

Legal guidelines

The information in this manual corresponded to the most recent status at the close of editing. The illustrations and descriptions cannot be used as grounds for any claims relating to lubricators that have already been delivered.

Schaeffler Technologies AG & Co. KG accepts no liability for any damage or malfunctions if the lubrication system has been modified or used in an inappropriate manner.

Design and safety guidelines

Intended purpose

The distributor provides the same quantity of grease to up to six lubrication points. Typical areas of application include the lubrication points on rolling and plain bearings, drive and conveyor chains, guidance systems, open gearboxes and seals.

Responsible persons

The operator and safety co-ordinator are defined as responsible persons. The operator is the natural or juristic person that uses the distributor or on whose instruction the distributor is used.

Qualified personnel

The distributor and lubrication system may only be operated by qualified personnel.

A person defined as qualified personnel:

- is authorised to use the distributor by the safety co-ordinator
- has all the necessary knowledge
- is familiar with the safety guidelines
- has read and understood this manual.

Protective equipment

Protective equipment is intended to protect personnel against health hazards.

When working with the distributor, the following protective equipment must be used at all times:

- protective goggles.

Lubrication system

If the lubrication system fails, take appropriate measures to prevent possibly material damage.

Caution

Do not modify the distributor. Keep grease away from eyes, skin and clothing. Observe the safety data sheets for the greases.

Warning

While working on machinery and plant, the safety guidelines and user manuals of the manufacturers must be observed.

Mounting

Collect the material required for mounting. Order accessories as appropriate, see table Accessories, page 20.

The material required is as follows:

- connectors
- lubricant feed line
- connection cable, short type,
  (connection cable, 2 m for separate mounting)
- holder (included in the KIT)
- grease cartridge (400 g) for prelubrication
- lubricator (included in the KIT)
- connector $G^1/_8$ for lubricator and connector $G^3/_8$ for distributor (only for separate mounting).

The distributor should be fitted exclusively with connector and lubricant feed lines supplied by
Schaeffler Technologies AG & Co. KG.

Fitting of connectors

Before joint or separate mounting, fit the connectors, *Figure 2*:

- Define the outlets to be used.
- Screw connectors into the outlets to be used,
  observing the maximum torque of 2 Nm.
- Screw the closing plugs into the outlets not required.

① Outlets 1 to 3
② Housing with drive unit and distribution system
③ Connector for FAG lubricator
④ Drive unit with motor and electronics
⑤ Outlets 4 to 6
⑥ Socket for connection cable

Figure 2
Lubricator
FAG Motion Guard CONCEPT6
C6-MP-DISTRIBUTOR

Do not loosen the screws on the underside of the distributor.
Do not open the distributor housing. If these warnings are ignored, this will invalidate the warranty.

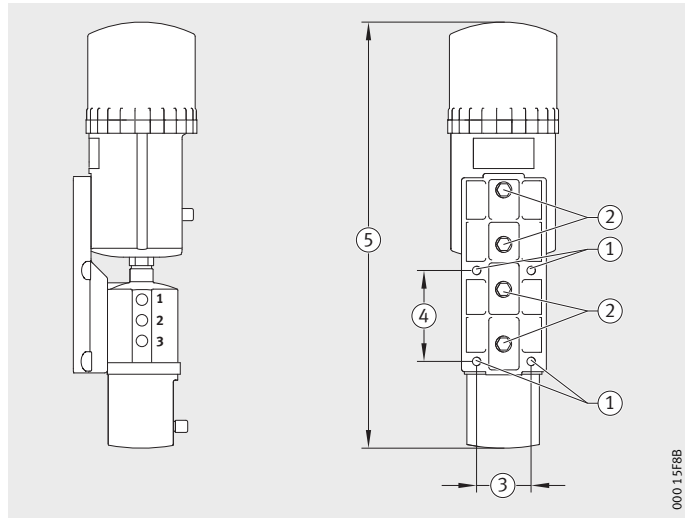
Joint mounting

In joint mounting, the lubricator and distributor are screwed together, the holder is screwed into place and then fixed to the machine.

- Grease the lubrication points and lubricant feed lines with the same lubricant as in the LC unit.
- Screw the lubricator and distributor together, observing the maximum torque of 2 Nm.
- Screw the holder to the lubrication system, using support washers and hexagon head screws M6×16.
- Screw the lubrication system and holder to a carrier assembly on the machine. If a metallic base material is present, use a minimum of three hexagon head screws M6×25; the holes for the fixing screws should correspond to the drilling template and *Figure 3*.
- Connect the lubricant feed lines to the connectors of the distributor and lay to the lubrication points. Observe the minimum bending radius of 40 mm.
- Connect the lubricant feed lines to the lubrication points.
- After ensuring that the components are switched off, connect the lubricator and distributor using a short connection cable.

The lubrication system is now ready for operation.

Note! When delivered, the pump system in the lubricator is filled with universal grease. After approximately ten greasing operations, the universal grease is replaced by the grease from the LC unit.



① Hexagon head screws M6×25 for fixing to metal wall
② Hexagon head screws M6×16 for distributor, lubricator and holder, maximum torque 3 Nm
③ Spacing 45 mm, horizontal
④ Spacing 75 mm, vertical
⑤ Total length with LC250 = 351,5 mm or with LC500 = 402,5 mm

Figure 3
Lubrication system, joint mounting

Separate mounting

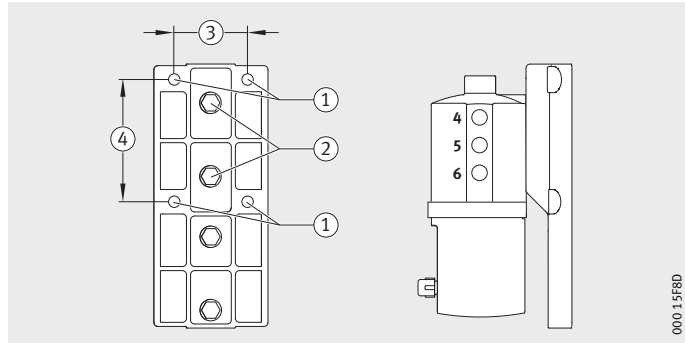
The distributor and lubricator can be mounted separately.
In this case, one connector each for the distributor and lubricator, an additional holder and a long connection cable are required.

- Grease the lubrication points and lubricant feed lines with the same lubricant as in the LC unit.
- Fix the lubricator to the machine, see the user manual for the lubricator.
- Screw the holder to the distributor, using support washers and hexagon head screws M6×16.
- Fix the distributor with the holder to a carrier assembly on the machine, *Figure 4*.
- Screw the connector $G^1/_8$ of the straight type (accessory) into the lubricator and the connector $G^3/_8$ (accessory) into the distributor. Observe the maximum torque of 2 Nm.
- Connect the distributor and the lubricator using the lubricant feed line (8×1,5 mm), maximum length 2 m.
- Connect the lubricant feed lines to the connectors of the distributor and lay to the lubrication points. Observe the minimum bending radius of 40 mm.
- Connect the lubricant feed lines to the lubrication points.
- After ensuring that the components are switched off, connect the lubricator and distributor using a long connection cable.

The lubrication system is now ready for operation.

Note!

When delivered, the pump system in the lubricator is filled with universal grease. After approximately ten greasing operations, the universal grease is replaced by the grease from the LC unit.



① Hexagon head screws M6×25 for fixing to metal wall
② Hexagon head screws M6×16 for distributor and holder, maximum torque 3 Nm
③ Spacing 45 mm, horizontal
④ Spacing 75 mm, vertical

Figure 4
Distributor, separate mounting

The maximum length of the lubricant feed lines of 5 m in each case includes the connection between the lubricator and distributor.

Initial operation

The service life and lubricant quantity are set on the lubricator, after which the outlets are configured. When the lubrication system is switched on, automatic initialisation starts. Once error-free initialisation has taken place, the lubrication system is ready and begins to operate.

Caution

Before initial operation, ensure that the lubrication system is not damaged.

Before initial operation, ensure that the lubrication system is correctly mounted, set and greased.

Determining the lubricant quantity

Based on the operating conditions, the lubricant quantity per lubrication point is determined. The daily lubricant quantity is the number of lubrication points multiplied by the lubricant quantity per lubrication point.

Setting the service life

The service life in days is determined from the volume of the lubricator divided by the daily lubricant quantity and can be set at any time on the lubricator without interrupting its operation. Setting can be carried out while the lubrication system is switched on or off.
Set the service life according to the manual for the lubricator.

Note!

The service life (dispensing time) can be determined using the software FAG Motion Guard SELECT MANAGER, www.schaeffler.com/services!

Configuring outlets

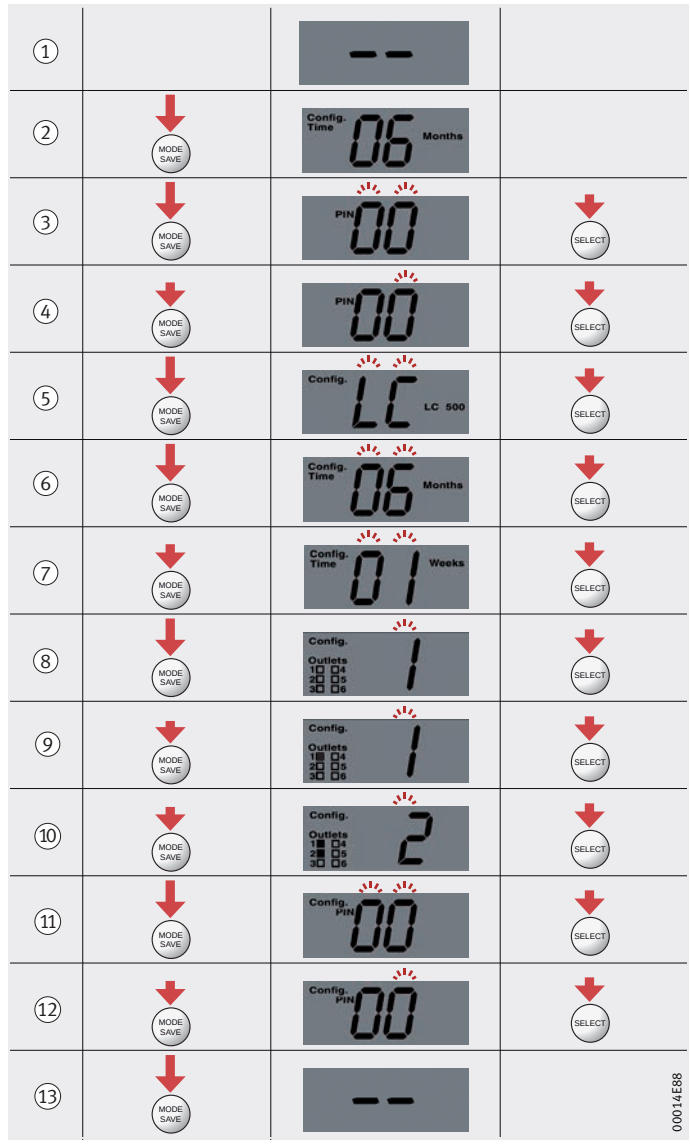
At the time of delivery, all the outlets are deactivated.
Once the distributor is connected, configure the outlets according to the manual for the lubricator and *Figure 5*, page 11.

Ensure that the lubricator is switched off while carrying out configuration.

Configuration

In *Figure 5*, the “SELECT” key is shown. When using FAG Motion Guard CONCEPT 6, press the “ON/OFF SELECT” key.

A long red arrow indicates that the key must pressed for at least four seconds.



① Delivered condition of fitted LC unit
② Time-setting and PIN-reset display
③ PIN entry, first digit
④ PIN entry, second digit
⑤ Select volume of the LC unit
⑥ Set month, weeks or days
⑦ Changing over to days or weeks
⑧ Setting outlets
Outlet 1 activated
⑩ Outlet 2 activated
⑪ Change PIN, first digit
(for initial configuration or following PIN reset only)
⑫ Change PIN, second digit
(for initial configuration or following PIN reset only)
⑬ Configuration complete

Figure 5
Configuration menu

Initialisation

When switched on for the first time, the lubrication system carries out automatic initialisation and begins to operate.
After replacing a distributor, carry out manual initialisation.

Switching on

The lubrication system is switched on using the lubricator:

- FAG Motion Guard CONCEPT6 with battery set:
  - Hold the “ON/OFF SELECT” key down until “--” disappears in the display.
- FAG Motion Guard CONCEPT6 CONTROL:
  - Apply the supply voltage, “--” will disappear in the display.

Automatic initialisation

The lubricant system will check the outlets and show each connected outlet by means of a black square.

Example

Outlets 1, 2, 3 and 6 are connected, *Figure 6*.

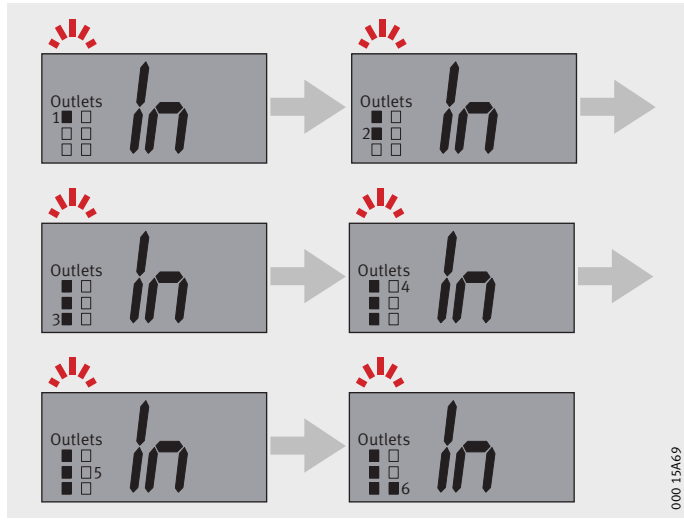


Figure 6
Display during initialisation routine

After automatic initialisation, the display on the lubricator shows the following:

- the connected outlets
- the residual volume in the lubricator.

The green LED flashes while the lubrication system is operating.

After initialisation, check whether all the connected outlets are represented as black squares in the display.

Manual initialisation

Before manual initialisation, the lubrication system must be switched off, check that “--” is shown in the display.

Lubrication system with FAG Motion Guard CONCEPT6:

- Press the keys on the lubricator at the same time for longer than 4 seconds.

The display will show “--”, the system is switched off.

Lubrication system with FAG Motion Guard CONCEPT6 CONTROL:

- Press the keys on the lubricator at the same time for longer than 4 seconds.
- Wait for “In” to flash.
- Activate the supply voltage.

The display will show “%Vol.”, the system is switched on.

After initialisation, check whether all the connected outlets are represented as black squares in the display.

Operation

Check the lubrication system regularly during operation and, if necessary, provide the lubrication points with additional lubricant.

Inspection

Check the following regularly:

- the integrity and condition of the lubricator, distributor, connections and feed lines
- the residual volume of lubricant
- the position and fixing of all components.

Additional lubricant quantity

The lubrication points can be manually greased with an additional quantity of lubricant at any time:

- Press both keys on the lubricator.
- The lubrication points are greased with lubrication at intervals of approximately 30 seconds. If all the outlets are connected, the greasing cycle will last a maximum of 14 minutes.

If both keys are pressed during a break (duration 30 seconds), a further greasing cycle is started when the current greasing cycle ends.

After an additional quantity of lubricant has been supplied or after a long period of machine stoppage (weekends, plant shutdowns), the remaining running time of the lubrication system must be recalculated in accordance with the user manual for the lubricator. This can be carried out using the software FAG Motion Guard Select Manager, www.schaeffler.com/services

An additional lubricant quantity can only be supplied at an ambient temperature of more than 0 °C.

The remaining running time, which has been shortened as a result of the additional lubricant quantity, must be taken into consideration in the lubrication and maintenance plan.

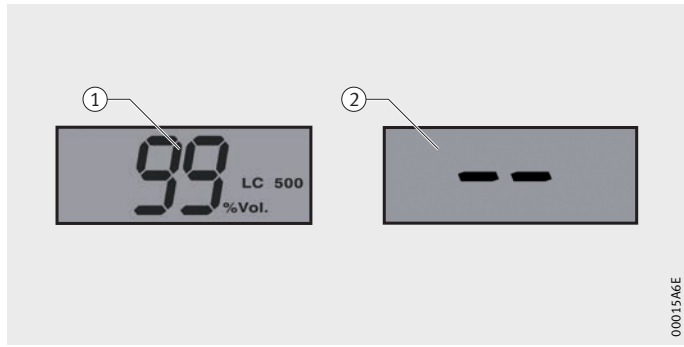
Switching off

Lubrication system with lubricator FAG Motion Guard CONCEPT6:

- Hold the “ON/OFF SELECT” key down until “%Vol.” disappears in the display and is replaced by “--”, *Figure 7*.

Lubrication system with lubricator
FAG Motion Guard CONCEPT6 CONTROL:

- Disconnect from the voltage supply.



① Before switching off
② After switching off

Figure 7
Switching off, switching on

After switching off, all the settings are saved. After switching on, greasing is continued at the point where it was stopped.

Malfunction

Defects are detected by the controller and shown on the display of the lubricator. The lubrication system will shut itself down until the defect has been eliminated and the error message has been acknowledged.

Eliminating the malfunction

If a defect occurs, the red LED will flash:

- Localise the defect, see table Error messages, page 17.
- Eliminate the defect.
- Acknowledge the error message (“ON/OFF SELECT” or “SELECT”).

Example

The display shows “F2”:

- The pressure required at the second lubrication point is more than 25 bar.
  - The second lubrication point is not being greased.
- Correct the defect present, a blockage of the outlet or a kink in the lubricant feed line, at the second lubrication point.
- Acknowledge the error message.

Error messages

Defect, cause, remedy

Localise and eliminate possible defect sources using the table.

Reading on the display	Defect	Possible cause	Remedy
E0	Lubricator has been switched off	Excessive motor current in the distributor	Replace the distributor
F1 to F6	Defect on the lubrication point indicated	Excessive motor current, the indicated outlet is blocked	Eliminate the blockage and acknowledge the defect (press ON/OFF SELECT or SELECT for longer than four seconds)
E2	Lubrication system has been switched off	The outlets on the distributor were incorrectly detected	Replace the distributor
E3	Lubrication system has been switched off	Time overrun in control of the distributor Defective connection cable	Replace the distributor Replace the connection cable
E4	Lubrication system has been switched off	The drive unit of the lubricator is defective	Replace the drive unit
E5	The outlets are not set	The outlets were not configured	Configure the outlets, switching off the voltage supply before acknowledging the defect in the case of CONCEPT6 CONTROL
LC	System does not detect an LC unit	LC unit missing	Fit an LC unit. Observe the user manual for the lubricator
L0 (only CONCEPT6 CONTROL)	Lubrication system without voltage supply	Lubricator is switched off	Attach voltage supply. Observe the user manual for the lubricator
(only CONCEPT6)	Battery set discharged	–	Replace battery set

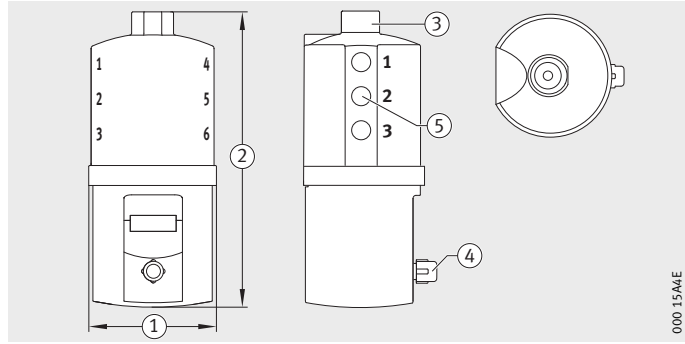
If the defect cannot be eliminated, please contact Customer Service at Schaeffler Technologies AG & Co. KG.

Technical data

Distributor

Technical data: see table.

Designation	Technical data
Length	148 mm
Diameter	64 mm
Mass	approx. 1 kg
Number of outlets	6
Operating pressure	max. 25 bar
Lubricants	greases up to consistency class NLGI 2
Operating temperature	–20 °C to +60 °C
Voltage supply	via connected FAG lubricator
Threaded connector for lubricator	$G^3/_8$ inside
Threaded connector for lubricant feed line(s)	$G^1/_8$ inside
Diameter of lubricant feed line(s)	8×1,5 mm, inside diameter 5 mm
Length of lubricant feed line(s)	max. 5 m, see the user manual for the lubricator
Protection class	IP 54

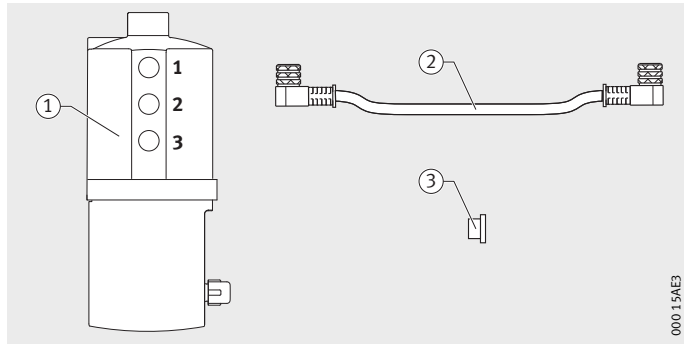


① Diameter
② Length
③ Threaded connector for lubricator
④ Jack for connection cable
⑤ Connection for connectors, lubricant feed lines

Figure 8
Distributor

Replacement parts

Component	Ordering designation
Distributor	ARCALUB-C6.DISTRIB-MP
Connection cable, short type	ARCALUB-C6.CABLE-MP
Closing plug	Available by agreement



① Distributor
② Connection cable, short type
③ Closing plug

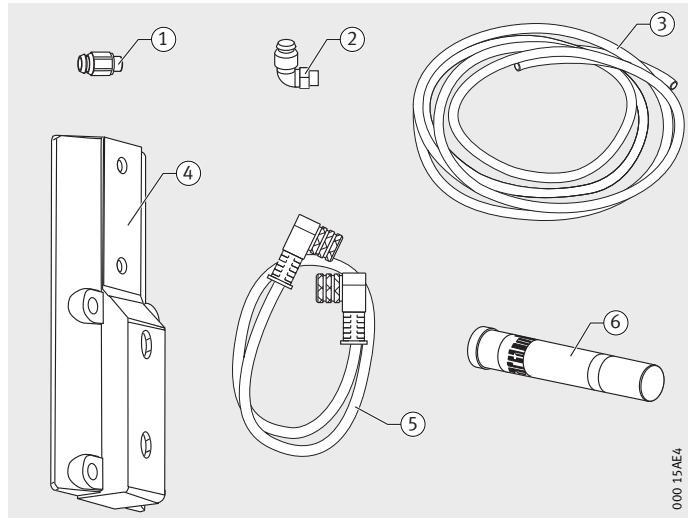
Figure 9
Replacement parts

Caution

Only FAG original replacement parts should be used.

Accessories

Component	Ordering designation
Straight connector $G^1/_8$, 6 pieces, including closing plugs, 4 pieces	ARCALUB-C6.JOINT-MP-0-SET
Elbow connector $G^1/_8$, 6 pieces, including closing plugs, 4 pieces	ARCALUB-C6.JOINT-MP-90-SET
Lubricant feed line 5 m, 8×1,5 mm, inside diameter 5 mm	ARCALUB-C6.TUBE-5M
Connector for lubricator, separate mounting	ARCALUB-C6.TUBEFIT-G1/8
Connector for distributor, separate mounting	ARCALUB-C6.TUBEFIT-G3/8
Connection cable, 2 m	ARCALUB-C6.CABLE-2M
Holder	ARCALUB-C6.HOLDER
Grease cartridge (400 g) for prelubrication: ■ filled with Arcanol MULTITOP ■ filled with other lubricants	ARCANOL-MULTITOP-400G Available by agreement



① Connector, straight type
② Connector, elbow type
③ Lubricant feed line
④ Holder
⑤ Connection cable, 2 m
⑥ Grease cartridge

Figure 10
Accessories

Caution

Only use FAG accessories.

Service

Distributors and empty lubricators can be sent to Schaeffler Technologies AG & Co. KG for:

- disposal of used parts in an environmentally-friendly manner
- replacement of LC units
- setting of the required lubricant quantity.

EU Declaration of Conformity

Declaration of Conformity for distributor
FAG Motion Guard C6-MP-DISTRIBUTOR

LUK INA FAG

EU Declaration of Conformity

In accordance with EG Machinery Directive 2006/42/EG
and EMC Directive 2004/108/EG

We hereby declare that the product described below is in conformity with the applicable health and requirements of the EU Directive in terms of its design and type and in the execution we have brought into circulation.
This declaration shall cease to be valid if any modification is made to the product without our agreement.

Product description:	Distributor MP-6 for Lubricator of series CONCEPT6
Product name:	FAG Motion Guard C6-MP-DISTRIBUTOR
Type:	C6-MP-DISTRIBUTOR

Applicable harmonised standards:

EN ISO 12100-1:2003	Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology and methodology
EN ISO 12100-2:2003	Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles
EN 60204-1:2006	Electrical equipment of machines

Signatures:

Schaeffler Technologies GmbH & Co. KG
Services Industrial Aftermarket, F'IS
Georg-Schäfer-Str. 30
97421 Schweinfurt

i.V. A. Kempkes
Dipl. Ing. Armin Kempkes
Vice President Services Industrial Aftermarket
Schaeffler Group Industrial

i. A. Michael Fassbinder
Michael Fassbinder
Product Manager
F'IS Lubrication Products

Date:
Schweinfurt, 15.07.2010

This declaration certifies conformity with the stated directives but does not represent a guarantee of characteristics.
The safety guidelines in the user manual must be observed.

Schaeffler Technologies GmbH & Co. KG • Georg-Schäfer Straße 30 • D-97421 Schweinfurt • Tel.: +49/2407/9149-99

000 16F77

Figure 11
EU Declaration of Conformity

Quick guide manual

This quick guide manual contains the most important guidelines on the use and setting of the distributor.

The quick guide manual is not a substitute for the detailed user manual.

Observe the safety guidelines and detailed information, see chapter Features, page 4 to chapter Technical data, page 18.

This quick guide manual is only valid for the distributor FAG Motion Guard C6-MP-DISTRIBUTOR in conjunction with the lubricators FAG Motion Guard CONCEPT6 or FAG Motion Guard CONCEPT6 CONTROL.

Configuring outlets

One distributor can be used to grease up to six lubrication points. At the time of delivery, all the outlets are deactivated. Once the distributor is connected, configure the outlets according to the manual for the lubricator and *Figure 4*.

Ensure that the lubricator is switched off while carrying out configuration.

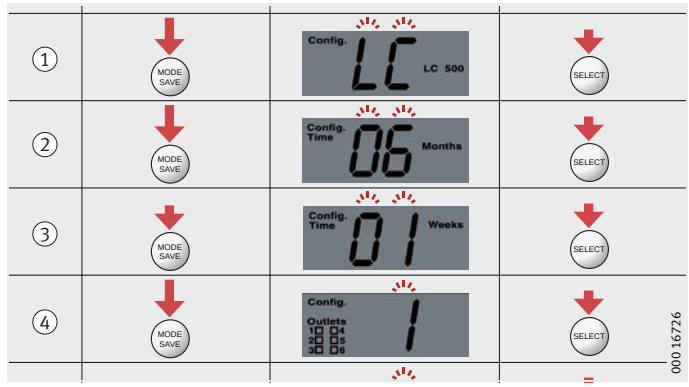


Figure 12
Configuration menu, excerpt

Configuration is carried out on the lubricator, *Figure 12*.

① Select the volume of the LC unit:
- Press “MODE SAVE” for longer than four seconds.
- Briefly press “ON/OFF SELECT” or “SELECT”.

② Set month, weeks or days.

③ Change to days or weeks:
- Press “MODE SAVE” for longer than four seconds.
- Briefly press “ON/OFF SELECT” or “SELECT”.

④ Configure outlets:
- Configure the remaining outputs in the same way.

Preparing the distributor

- Screw connectors into the outlets to be used.
- Screw closing plugs into the outlets that are not required.

Observe the maximum torque of 2 Nm for all screw connections.

Mounting the lubrication system

- Grease the lubrication points and lubricant feed lines with the same lubricant as in the LC unit of the lubricator.
- Screw the lubricator and distributor.
- Screw the holder firmly to the lubrication system.
- Fix the holder and lubrication system to a rigid wall.
- Connect the lubricant feed lines to the connectors of the distributor and lay to the lubrication points. Maximum length of lubricant feed lines, see user manual for CONCEPT6 or CONCEPT6-CONTROL.
- With the lubrication system switched off, connect the lubricator and distributor using a connection cable.

Determining the service life

In accordance with the operating conditions, determine the daily lubricant quantity.

The service life and setting mode are dependent on the volume of the LC unit (lubricant cartridge).

The service life can be determined using the software FAG Motion Guard SELECT MANAGER, www.schaeffler.com/services

Only connect the lubrication points that require identical lubricant quantities.

Switching on the lubrication system

Set service life or pulse operation, size of the LC unit, outlets and PIN in accordance with the user manual for the lubricator.

The lubrication system is switched on using the lubricator:

- FAG Motion Guard CONCEPT6:
  - Hold the “ON/OFF SELECT” key down until “--” disappears in the display.
- FAG Motion Guard CONCEPT6 CONTROL:
  - Apply the supply voltage, “--” will disappear in the display.

The lubrication system will now carry out automatic initialisation, during which the outlets used are activated and shown in the display. After initialisation, the residual volume is shown and the lubrication system begins to operate.

Switching off the lubrication system

After switching off, all the settings are saved. After switching on, greasing is continued at the point where it was stopped.

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